

**IN THE CLAIMS:**

Please amend the claims as follows:

1. (currently amended) A heat treated silicon wafer for use in semiconductor device manufacture, wherein the silicon wafer is obtained by slicing a silicon wafer from a silicon ingot being prepared by a Czochralski method or a MCZ method, wherein the sliced silicon wafer has a ~~V-rich region, an I-rich region~~, a nitrogen concentration in a range from  $5 \times 10^{13}$  atoms/cm<sup>3</sup> to  $1 \times 10^{15}$  atoms/cm<sup>3</sup> and includes void defects; and wherein the heat-treated silicon wafer is prepared by heat-treating the sliced silicon wafer under a non-oxidative atmosphere such that the void defects of a wafer surface layer thereof are reduced.

2. (previously presented) A silicon wafer for non-oxidative heat treatment for use in semiconductor device manufacture, wherein the silicon wafer is obtained from a silicon ingot being prepared by a Czochralski method or a MCZ method with  $V/G1$  higher than  $0.18 \text{ mm}^2 / ^\circ\text{C min}$  and not exceeding  $0.4 \text{ mm}^2 / ^\circ\text{C min}$  where  $V$  is a pulling speed and  $G1$  is a temperature gradient in a vicinity of a solid/liquid interface, and wherein the silicon wafer contains nitrogen concentration in a range from  $5 \times 10^{13}$  atoms/cm<sup>3</sup> to  $4 \times 10^{14}$  atoms/cm<sup>3</sup>.

3. (previously presented) The heat-treated silicon wafer according to claim 1, wherein the silicon wafer is heat-treated under a hydrogen atmosphere, an argon atmosphere, or a combination thereof.

4. (previously presented) A method of manufacturing a silicon ingot for manufacturing silicon wafers for non-oxidative heat treatment, the method comprising: pulling a silicon single crystal by a Czochralski method or a MCZ method to manufacture the silicon ingot, wherein nitrogen is doped and the silicon single crystal is pulled under conditions that a portion of the silicon single crystal is formed in which nitrogen concentration is from  $5 \times 10^{13}$  atoms/cm<sup>3</sup> to  $1 \times 10^{15}$  atoms/cm<sup>3</sup> and that  $V/G1$  is higher than  $0.18 \text{ mm}^2 / ^\circ\text{C min}$  and not exceeding  $0.4 \text{ mm}^2 / ^\circ\text{C min}$  where  $V$  is a pulling speed and  $G1$  is a temperature gradient in a vicinity of a solid/liquid interface.

5. (previously presented) The silicon wafer according to claim 2, wherein the silicon wafer is for heat treatment under a hydrogen atmosphere, an argon atmosphere, or a combination

thereof.

6. (previously presented) A silicon wafer for semiconductor device manufacture, having  $3\text{ }\mu\text{m}$  of a surface layer removed wherein a doping amount of nitrogen thereof is determined such that an annealed silicon wafer achieves a predetermined oxide film withstand-voltage non-defective ration with TZDB test after said removal of a surface layer of  $3\text{ }\mu\text{m}$ .

7. (previously presented) A method of determination of a doping nitrogen-concentration of a silicon wafer for semiconductor device manufacture comprising:  
heat-treating a silicon wafer doped with nitrogen under non-oxidative atmosphere such that void defects of a surface layer are reduced so as to obtain the nitrogen-doped silicon wafer;  
removing the surface layer from the nitrogen-doped silicon wafer; and  
conducting a TDDB or a TZDB test for the nitrogen-doped silicon wafer.

8. (previously presented) The method according to claim 7, wherein the TDDB test determines an upper limit of the nitrogen concentration.

9. (previously presented) The heat-treated silicon wafer according to claim 1, wherein the nitrogen concentration is in a range from  $5 \times 10^{13}$  atoms /  $\text{cm}^3$  to  $4 \times 10^{14}$  atoms /  $\text{cm}^3$ .

10. (previously presented) The heat-treated silicon wafer according to claim 1, wherein the nitrogen concentration is in a range from  $1 \times 10^{14}$  atoms /  $\text{cm}^3$  to  $4 \times 10^{14}$  atoms /  $\text{cm}^3$ .

11. (previously presented) The heat-treated silicon wafer according to claim 1, wherein the silicon ingot is prepared by a Czochralski method or a MCZ method with  $V/G1$  higher than  $0.18\text{ mm}^2 / ^\circ\text{C min}$  and not exceeding  $0.4\text{ mm}^2 / ^\circ\text{C min}$  where  $V$  is a pulling speed and  $G1$  is a temperature gradient in a vicinity of a solid/liquid interface.

12. (previously presented) The heat-treated silicon wafer according to claim 9, wherein the silicon ingot is prepared by a Czochralski method or a MCZ method with  $V/G1$  higher than  $0.18\text{ mm}^2 / ^\circ\text{C min}$  and not exceeding  $0.4\text{ mm}^2 / ^\circ\text{C min}$  where  $V$  is a pulling speed and  $G1$  is a temperature gradient in a vicinity of a solid/liquid interface.

13. (previously presented) The heat-treated silicon wafer according to claim 10, wherein

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the silicon ingot is prepared by a Czochralski method or a MCZ method with  $V/G1$  higher than  $0.18 \text{ mm}^2 / ^\circ\text{C min}$  and not exceeding  $0.4 \text{ mm}^2 / ^\circ\text{C min}$  where  $V$  is a pulling speed and  $G1$  is a temperature gradient in a vicinity of a solid/liquid interface.

14. (previously presented) The heat-treated silicon wafer according to claim 1, wherein the heat treatment is under a hydrogen atmosphere, an argon atmosphere, or a combination thereof.